REMARKS

Claims 1-26, 61-63, and 69-71 are pending in the application. All claims stand rejected. The Examiner's objections and rejections in the final office action are addressed below in substantially the same order as in the office action.

Applicant filed a Reply on Feb. 15, 2007. However, the Amendment to the Claims included extraneous material in brackets. Applicant submits this Supplemental Reply to present the Claims in proper format.

Section 102 Rejections; Claims 69-71

Claim 69 stands rejected as anticipated by Orban (6,353,577). Applicant submits that amended claim 69 is neither anticipated nor obviated by Orban because Orban does not teach or suggest a separate recording device for each sensor or a wireless transmission of data.

The Examiner contends in part that Orban teaches a separate recorder co-located with each sensor recording seismic information corresponding to a selected sensing location from the plurality of sensing location and cites to Col. 4, lines 10-23, which is reproduced below:

> …The decimator 42 is complementary to the sigma-delta converter that operates as a modulator at a high sampling rate, ie at 400 kHz, with typically one bit resolution. The decimator 42 processes digitally the oversampled bit stream to generate high accuracy samples of typically 24 bits at lower rate, ie 24 ms.
>
> A digital low pass filter to attenuate noise is then applied by the low pass filter module 44 to the signals from the decimator 42. The signals then pass to the logic module 46, ***which applies calibration coefficients that are stored in its attached data storage means***, preferably an EEPROM, and corrects the signals therewith. The telemetry module then conditions the signals and feeds them into the seismic data network system, which in FIG. 2 is symbolised by a seismic data bus 50. The seismic data bus 50 is connected to further *seismic data recording and processing units that* ***are not illustrated***. (emphasis added)

To Applicant's reading, the only data stored in the above-quoted passage are the "calibration coefficients." The seismic signals, in contrast, are conditioned and then transmitted by the seismic data bus 50 to "further seismic data recording and processing units that are not illustrated." Thus, Orban clearly describes a device wherein a separate recorder is not co-located with each sensor. For clarity, claim 69 has been amended to recite that the recorder records and stores the data, which is not shown or suggested by Orban.

Additionally, Orban teaches only a cable system as shown in Fig. 1 and data is shown as transmitted by the seismic data bus 50. In no instance does Orban suggest the use of wireless transmission.

Accordingly, Applicant respectfully submits that claim 69 as amended is in condition for allowance.

With respect to amended claim 70, as discussed above, Orban does not teach or suggest recording and storing seismic data. Thus, Applicant submits that claim 70 is in condition for allowance.

Claim 71 stands rejected as anticipated by Wood (5,724,241). Wood discloses a plurality of sensor units 20 associated with one sensor station 10. Wood also discloses a GPS device 40 at the sensor station 10. However, as described in Wood at col. 6, lines 30-35, the sensors can be separated from the receiver by lead-ins that are 50 meters in length. Applicant observes that even if the GPS device 40 furnishes location data, such location data provides no meaningful information as to the location of a given sensor unit. For instance, with respect to Figure 2 of Wood, a GPS device would provide the same location data for any of the numerous sensors connected to the unit 40. In contrast, as amended, claim 71 recites one sensor unit, a location sensor that provides a location parameter for the one sensor unit, an acquisition device receiving seismic signals from only one sensor unit, and a memory device that stores the location parameter for the one sensor unit. Because such an arrangement is not taught or suggested by Wood, Applicants submit that amended claim 71 is in condition for allowance.

Section 103 Rejections; Claims 1-13, 15-26, 61 and 63

Claims 1-13, 15-26, 61 and 63 stand rejected under 35 U.S.C. as being unpatentable over Tanenhaus in view of Orban. The Examiner contends that it would be obvious to modify Tanehaus with Orban in order to obtain seismic data that is useful as information about subsurface stratigraphy in a given area.

Applicant respectfully submits that the Examiner has used the Applicant's application as a blueprint to combine the contrary teachings of Tanenhaus and Orban. To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). MPEP 2143.

In this instance, the prior art clearly does not have a suggestion or motivation to combine. Section 2143.01 of the MPEP defines two cases that preclude a finding of a suggestion to combine: (i) a modification that would change the principle of operation, and (ii) a modification that renders a device unsatisfactory for its intended purpose. For the reasons presented below, the Examiner's proposed modification falls within these two cases.

1. ***MPEP 2143.01 VI. If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims prima facie obvious. In re Ratti, 270 F.2d 810, 123 USPQ 349 (CCPA 1959)***

The principles of operation of the Tanenhaus Device and the Orban system are distinct and incompatible. Modifying the Tanenhaus Device with the cable seismic data

acquisition system of Orban would clearly change the principle of operation of the Tanenhaus Device. Tanenhaus expressly states the advantages of the described invention as "accurately, compactly, and flexibly remotely monitoring a device[.]" Col. 1, lines 56-57. Further, Tanenhaus describes the data acquisition processing means 20 as "preferably positioned entirely within a single, compact, and rugged housing [.]" Col. 8, lines 10-12. Thus, Tanenhaus operates on the principle of having a single autonomous unit. In contrast, Orban teaches a conventional seismic data acquisition system wherein, for example, the sensors are remote from the recording units. The diametrically opposite principles of operation of these references preclude a finding of prima facie obviousness because the Examiner's proposed modification or combination of Tanenhaus and Orban would necessarily change the principle of operation of Tanenhaus.

2. MPEP 2143.01 (v) If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. In re Gordon, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984)

To Applicant's reading, the intended purpose of the Tanenhaus devices to remotely monitor any number of events. Indeed, Tanehnaus emphasizes the value of remote monitoring throughout the Summary of the Invention:

> In view of the foregoing background, the present invention advantageously provides a method and apparatus for accurately, compactly, and flexibly ***remotely monitoring*** a device by the use of a plurality of sensors such as shock, vibration, and at least one other such as temperature, tilt, strain, or humidity simultaneously and with a low power consumption...
>
> More particularly, the present invention provides a method of ***monitoring*** a device comprising the steps of collecting a plurality of sensor signals representative of sensed data from a plurality of micro-electrical mechanical sensors ("MMEMS") ... The method also includes converting the plurality of sensor signals into digital data, processing the digital data, and simultaneously and ***remotely*** detecting the processed data to determined the occurrence of at least one predetermined condition...
>
> The present invention also includes an apparatus for ***monitoring*** a device. The apparatus preferably includes a plurality of micro-electrical

> mechanical sensors positioned to sense a plurality of parameters including at least shock, vibration, and at least one other parameter and to provide a corresponding plurality of sensor data signals representative of the plurality of ***monitored*** parameters.... The apparatus advantageously further includes a ***remote*** detector responsive to the data acquisition processing circuit for ***remotely*** detecting the processed digital data...

In contrast, Orban uses a seismic data bus 50 to transmit data. Orban describes the sensors and recorders as coupled to the seismic data bus 50. Thus, the Orban system is completely situated in the field. Stated differently, Orban does not remotely monitor the sensors. Rather, all the equipment for receiving data from the sensors is local to the sensors. Thus, the combination of Tanenhaus with Orban would deprive Tanenhaus of its stated purpose of remote monitoring.

In view of above, Applicant respectfully submits that the obviousness rejection of claims 1-13, 15-26, 61 and 63 using the combination of Tanenhaus in view of Orban is improper. Thus, Applicant requests withdrawal of such rejections and allowance of these claims.

With respect to claim 1, Applicant has clarified claim 1 to recite that the transmission is wireless and the location sensor is connected to the acquisition device. These recitations further distinguish claim 1 from the prior art of record.

With respect to claim 2, Tanenhaus does not teach a location sensor and the acquisition device that are in a common housing and the sensor unit in a sensor housing separate from the common housing. Rather, Tanenhaus teaches a single, compact system housing all components.

With respect to claim 3, Tanenhaus does not teach a cable coupling a first housing to a second housing. Applicant has reviewed Tanenhaus and in particular Figure 9, but finds no teaching of the use of any cable associated with the sensing device.

With respect to claims 4-15 and 17-26, these claims depend from claim 1 which is believed to be in condition for allowance. Thus, these claims are also believed to be in condition for allowance.

With respect to claim 16, Tanenhaus does not teach a remotely located controller being programmed to control seismic data acquisition for imaging a subsurface formation.

With respect to claim 61, Tanenhaus does not teach or suggest a central controller controlling an array for acquiring seismic data.

Claims 14 and

Section 103 Rejections; Claims 14 and 62

The Examiner has rejected claims 14 and 62 as being unpatentable over Tanenhaus in view of Orban and Rialan.

As discussed above, Applicant submits that Tanenhaus cannot be combined with Orban in the manner suggested by the Examiner. Thus, such a combination cannot serve as a basis for rejection of claims 14 and 62. Thus, Applicant respectfully submits that the rejection of claims 14 and 62 be withdrawn.

CONCLUSION

For all the foregoing reasons, Applicant submits that the application is in a condition for allowance. The Commissioner is hereby authorized to charge any additional fees or credit any overpayment to Deposit Account No. **13-0010 (IO-1096USCP)**.

Respectfully submitted,

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